

AMENDMENTS TO THE CLAIMS

With this Amendment After Final, claims 13-30 and 39-51 are canceled, and new claims 52-86 are added. Claims 1-12 and 31-38 were previously cancelled. As of this Amendment After Final, the status of the claims (claims 52-86) is as follows:

1.- 51. (Canceled)

52. (New) An isolated double-stranded DNA molecule having first and second nucleotide strands, the first nucleotide strand encoding a bovine leptin polypeptide and the second nucleotide strand hybridizing to the nucleotide sequence of SEQ ID NO:3, from nucleotide 1 to nucleotide 450 of SEQ ID NO:3, under stringent hybridization conditions.

53. (New) The isolated double-stranded DNA molecule of claim 52 wherein the first nucleotide strand exhibits identity with at least sixty (60) percent of corresponding nucleotide bases at positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

54. (New) The isolated double-stranded DNA molecule of claim 52 wherein the first nucleotide strand exhibits identity with at least eighty (80) percent of corresponding nucleotide bases at positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

55. (New) The isolated double-stranded DNA molecule of claim 52 wherein the first nucleotide strand exhibits identity with at least ninety (90) percent of corresponding nucleotide bases at positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

56. (New) The isolated double-stranded DNA molecule of claim 52 wherein the first nucleotide strand exhibits identity with at least ninety five (95) percent of corresponding nucleotide bases at positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

57. (New) The isolated double-stranded DNA molecule of claim 52 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature, or (7) any of these in any combination.

58. (New) The isolated double-stranded DNA molecule of claim 52 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature.

59. (New) The isolated double-stranded DNA molecule of claim 52 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature, or (7) any of these in any combination.

60. (New) The isolated double-stranded DNA molecule of claim 52 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature.

61. (New) An isolated double-stranded DNA molecule having first and second nucleotide strands that are each at least 24 nucleotides long, the entire length of the first nucleotide strand hybridizing under stringent hybridization conditions to a contiguous nucleotide sequence within the range of base pair 1 of SEQ ID NO: 3 to base pair 450 of SEQ ID NO: 3, the contiguous nucleotide sequence containing at least one of the corresponding nucleotide base positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

62. (New) The isolated double-stranded DNA molecule of claim 61 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature, or (7) any of these in any combination.

63. (New) The isolated double-stranded DNA molecule of claim 61 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-

hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature.

64. (New) The isolated double-stranded DNA molecule of claim 61 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature, or (7) any of these in any combination.

65. (New) The isolated double-stranded DNA molecule of claim 61 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature.

66. (New) An isolated single-stranded DNA molecule having a single nucleotide strand that hybridizes under stringent hybridization conditions to the nucleotide sequence of SEQ ID NO:3, from nucleotide 1 to nucleotide 450 of SEQ ID NO:3, a complimentary RNA strand of the single-stranded DNA molecule encoding a bovine leptin polypeptide.

67. (New) The isolated single-stranded DNA molecule of claim 66 wherein a complimentary RNA strand of the single-stranded DNA molecule exhibits identity with at least sixty (60)

percent of corresponding nucleotide bases selected from positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, and 444 of SEQ ID NO: 3.

68. (New) The isolated single-stranded DNA molecule of claim 66 wherein a complimentary RNA strand of the single-stranded DNA molecule exhibits identity with at least eighty (80) percent of corresponding nucleotide bases selected from positions 9, 31, 43, 55, 59, 64, 74, 75, 78, 111, 129, 144, 151, 190, 202, 205, 206, 235, 241, 242, 295, 339, 362, 264, 265, 266, 370, 372, 397, 415, 427, 458, and 499 of SEQ ID NO: 3.

69. (New) The isolated single-stranded DNA molecule of claim 66 wherein a complimentary RNA strand of the single-stranded DNA molecule exhibits identity with at least ninety (90) percent of corresponding nucleotide bases selected from positions 9, 31, 43, 55, 59, 64, 74, 75, 78, 111, 129, 144, 151, 190, 202, 205, 206, 235, 241, 242, 295, 339, 362, 264, 265, 266, 370, 372, 397, 415, 427, 458, and 499 of SEQ ID NO: 3.

70. (New) The isolated single-stranded DNA molecule of claim 66 wherein a complimentary RNA strand of the single-stranded DNA molecule exhibits identity with at least ninety five (95) percent of corresponding nucleotide bases selected from positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, and 444 of SEQ ID NO: 3.

71. (New) The isolated single-stranded DNA molecule of claim 66 wherein:
the single nucleotide strand is at least 24 nucleotides long;
the entire length of the single nucleotide strand hybridizes under stringent hybridization conditions to a contiguous nucleotide sequence within the base pair range 1 to 450 of SEQ ID NO: 3; and

the single nucleotide strand contains at least one corresponding nucleotide base selected from the positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

72. (New) The isolated double-stranded DNA molecule of claim 66 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature, or (7) any of these in any combination.

73. (New) The isolated double-stranded DNA molecule of claim 66 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature.

74. (New) The isolated double-stranded DNA molecule of claim 66 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature, or (7) any of these in any combination.

75. (New) The isolated double-stranded DNA molecule of claim 66 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature.

76. (New) An isolated single-stranded DNA molecule, a complimentary RNA strand of the single-stranded DNA molecule hybridizing under stringent hybridization conditions to the nucleotide sequence of SEQ ID NO:3, from nucleotide 1 to nucleotide 450 of SEQ ID NO:3, the single-strand DNA molecule encoding a bovine leptin polypeptide.

77. (New) The isolated single-stranded DNA molecule of claim 76 wherein the single-stranded DNA molecule exhibits identity with at least sixty (60) percent of corresponding nucleotide bases selected from positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

78. (New) The isolated single-stranded DNA molecule of claim 76 wherein the single-stranded DNA molecule exhibits identity with at least eighty (80) percent of corresponding nucleotide bases selected from positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

79. (New) The isolated single-stranded DNA molecule of claim 76 wherein the single-stranded DNA molecule exhibits identity with at least ninety (90) percent of corresponding nucleotide bases selected from positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

80. (New) The isolated single-stranded DNA molecule of claim 76 wherein the single-stranded DNA molecule exhibits identity with at least ninety five (95) percent of corresponding nucleotide bases selected from positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

81. (New) The isolated single-stranded DNA molecule of claim 76 wherein:

the single nucleotide strand is at least 24 nucleotides long;

the entire length of a complement of the single nucleotide strand hybridizes under stringent hybridization conditions to a contiguous nucleotide sequence within the base pair range 1 to 450 of SEQ ID NO: 3; and

the single nucleotide strand contains at least one corresponding nucleotide base selected from the positions 2, 5, 92, 131, 146, 147, 176, 182, 183, 225, 279, 280, 302, 311, 313, 322, 333, 340, 356, 368, 401, 404, 414, or 444 of SEQ ID NO: 3.

82. (New) The isolated double-stranded DNA molecule of claim 76 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature, or (7) any of these in any combination.

83. (New) The isolated double-stranded DNA molecule of claim 76 wherein the stringent hybridization conditions include (1) hybridization at 55° C, (2) hybridization for twenty hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.99 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature at least as high as the hybridization temperature.

84. (New) The isolated double-stranded DNA molecule of claim 76 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature, or (7) any of these in any combination.

85. (New) The isolated double-stranded DNA molecule of claim 76 wherein the stringent hybridization conditions include (1) hybridization at about 42° C and using a hybridization solution containing 50% formamide, (2) hybridization for twenty-one hours, (3) hybridization using a hybridization solution with a low salt concentration of 0.82 M sodium ion, (4) hybridization using a hybridization solution with a salmon sperm concentration of 100 mg/ml, (5) washing with a post-hybridization washing solution containing 0.1x SSC and 0.1% SDS, and (6) washing with a post-hybridization washing solution at a temperature about 60°C which is at least as high as the hybridization temperature.

86. (New) An isolated protein of the formula SEQ. ID. 4.